83914

Z/018/60/000/010/001/001
E192/E482

9.4120 (1105,1138,1140)

AUTHOR: Kloss, Albert (Prague)

TITLE: ~~Sealed Mercury Tubes~~ Made by ČKD

PERIODICAL: Elektrotechnik, 1960, No.10, pp.314-316

TEXT: The ČKD works in Prague developed a number of modern mercury tubes or sealed metal ignitrons which are fully satisfactory as high-power rectifiers for industrial purposes. An air-cooled ignitron, type URA-051, is rated at 200 A and can operate in a 6-phase system with a direct output voltage of 3300 V; this device is illustrated in Fig.1. If the tube is employed only up to 1000 V, its maximum current can be increased to 250 A. The weight of the rectifier is 75 kg and the minimum quantity of air necessary for its cooling is 0.6 m^3/s. The principal component of the tube is a large anode made of special high-purity electrographite which is fixed to a steel support. Two graphite grids are situated below the anode; these perform the function of increasing the electrical strength of the tube and permit the control of the ignition point and regulation of the current and voltage of the tube by means of comparatively small signals. The ignitron, type URV-052, is similar to the preceding tube except

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Sealed Mercury Tubes Made by ČKD

that it is water cooled. Consequently, the tube can operate at 300 A with inverse voltages up to 5 kV. Fig.2 shows a photograph of a rectifying system made of 4 such tubes, which is used in the current supply system of single-phase locomotives. A different water-cooled ignitron (type URV-051)[25] was developed for currents up to 450 A and direct output voltages of 1000 V. This tube has a larger anode than that of the other tubes and it contains only one grid; otherwise its construction is unchanged. The weight of this ignitron is 59 kg. The technological processes involved in the manufacture of the ignitrons are discussed; in particular, the problems of processing and degassing the metal and graphite components and purifying the mercury are discussed. There are 5 figures.

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88225

11.4300
26.2311

Z/017/60/049/007/003/003
E073/E535

AUTHOR: Kloss, Albert

TITLE: On Radial Contraction of a Low Pressure Arc in Mercury Vapour

PERIODICAL: Elektrotechnický obzor, 1960, Vol.49, No.7, pp.367-372

TEXT: The current distribution on the anode of a mercury arc rectifier has a considerable influence on the load capacity. Non-uniform distribution with time of the arc along the anode has a considerable influence on the speed of local deionization, non-uniform burning of the arc throughout the cross-section brings about over-heating of some anode areas, increasing the electron emission. These nonuniformities are also due to atomization of anode material. These phenomena were studied experimentally in the laboratories of ČKD, Prague during work on developing a new mercury arc rectifier. The behaviour of the arc in the rectifier, particularly on the face of the anode, was studied stroboscopically and oscillographically on the basis of measurement of ionic currents from the plasma into probes. The experimental results, a part of which are described in this paper, indicate that the arc in a mercury arc rectifier is essentially unstable and moves about the cross-section and along the

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face of the anode. Under certain conditions a pinch effect and axial oscillations occur. In the first part of the paper the theory of the pinch effect is briefly described on the basis of published work by Russian and English authors (Refs. 1,2,4,6). The experimental measurements of the ion currents of negatively charged electrodes in the plasma of mercury vapour were carried out in tanks of 300 to 500 mm dia, 600 to 1000 mm long. The negative electrode was formed by the mercury level, occupying almost the entire bottom cross-section of the tank. The positive electrode was formed by a graphite anode 140 to 200 mm dia., i e. an arrangement which is usual for single anode mercury arc rectifiers. The tanks were continuously evacuated to attain a limit pressure of extraneous gases of 10^{-4} mm Hg. The pressure of saturated mercury vapour determined by the temperature of the tank varied between 1.2×10^{-3} to 8.9×10^{-2} mm Hg. The average rectifier current was 800 A. In most cases the maximum amplitudes were 1500 to 2000 A. The rate of current increase was of the order of 10^5 to 10^6 A/sec. Fig.3 shows a sketch of the cross-section of the experimental rectifier. A steel pin 1 with an insulator 2 passes through the top lid of a tank 4. The tank is evacuated by a combination of a mercury diffusion pump and a rotary

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On Radial Contraction ....

oil pump connected to the suction pipe 3. The pin 1 carries an anode 5 made of a special electrographite which has been degassed at 800°C in vacuum. The anode 5 is located inside a steel screen 6 which is only open at the bottom. At the face of the electrode two auxiliary graphite electrodes S_1 and S_2 of 30 mm dia. are located, the electrode S_1 is centrically mounted, the electrode S_2 is mounted at the edge of the anode. A further electrode S_3 is located above the anode in the anode space. The electrode S_4 has a diameter of 15 mm and below the entire anode space, i.e. below the grid 11 with the screen 7, there is a further electrode S_5 also of 15 mm dia. The bottom of the tank 10 serves for tapping off the current, is insulated from the tank 4 by means of the insulator 8. The cathode is formed by the mercury 9. In addition, the rectifier included an ignition device which excited and maintained the cathode spot at the level of the mercury cathode. The circuit diagram is shown in Fig.4: the transformer Tr was connected to the anode A and cathode K of the mercury arc rectifier. The grid M was connected to a pulse control circuit R. The auxiliary electrodes S_1 - S_6 were negatively biased from a battery B and an oscillograph loop O was connected into this

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bias circuit. The anode current i_a was measured from a shunt and was also oscillographed. The voltage between the anode and the cathode was recorded by a CRT oscillograph. The dependence of the ion current i_j on the pressure of the saturated mercury vapour, on the anode current i_a and mainly on the steepness of the anode current was measured. A typical illustration of the conditions pertaining to a temperature range of 40 to 60°C of the rectifier is that shown in Fig.5. For lower pressures of 1 to 2 x 10^{-3} mm Hg the ion current i_j starts to increase earlier, i.e. the time lag t_1 is shorter and so is the time lag t_2 during which the ion current forms a sharp peak. This is followed by a period during which i_j oscillates very sharply with a frequency of 500 to 5000 cps, whereby the oscillation in each cycle is different. The conditions for an initial pressure in the tank of 10^{-3} mm Hg and the maximum current $i_{a\ max}$ = 1700 A are illustrated in Fig.6. On the basis of these results and also on the basis of investigation of the influence of the steepness in the increase of the anode current i_a, the author proposes the following mechanism: during the first instant the forming arc reaches the edge zone of the anode surface

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On Radial Contraction ....

and, owing to the influence of the skin effect, it starts to contract quickly towards the centre of the area. After a certain time, which is dependent on the pressure and on the speed of increase of the current, a maximum contraction of the arc will occur, after which the arc will again expand. At the instant of arc contraction, i.e. when it occupies a minimum area on the anode surface, the increment in ion concentration Δn, caused by contraction of the arc, will be highest. As soon as the arc expands again Δn will decrease. In all the experiments good agreement was found to exist between the moment of concentration of the arc and the local first maximum of the ion current. It was also experimentally proved that, in agreement with theory, the moment of concentration coincides with increase in pressure; if the current drops below a certain level, there will be practically no more arc concentration. Pinch effect oscillations were also observed by Cousins and Ware (Pinch Effect Oscillations. Proc. Phys. Soc. LXIV (1951), 2-B, pp.159-166). According to them, the oscillations composed of contraction and expansion of the arc column increase in frequency with decreasing pressure. The inductance of the arc fluctuates during oscillations; during contraction the inductance and the arc voltage increase and

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On Radial Contraction ....

during expansion both decrease. The oscillogram, Fig.8 (top showing the ion current i_{jsl}, the bottom showing the anode to cathode voltage drop), reflects clearly the first contraction of the arc. At the moment when the ion current reaches its first maximum, the voltage will also start to decrease. The frequency of the oscillations, which continue until the anode current flows through, will roughly correspond to the frequency of the first oscillation. Compared to the first oscillation, the period of which does not change, the further oscillations are not regular. This indicates that only the first arc contraction, which always begins at the same pressure conditions, is of a stable character. The further oscillations are no longer regular. Neutral particles also participate in the oscillation of the positive ions. As a result of that, radial pressure waves will occur in the anode space, which may lead to oscillations of the steel parts, and they will finally manifest themselves by sonic effects. The ion currents of the electrodes S_5 and S_6 indicate that in this space the arc moves irregularly and there the radial contraction above the cathode is not as intensive and regular as it is at the face of the anode; this is attributed to the fact that mercury drops, which are ejected from

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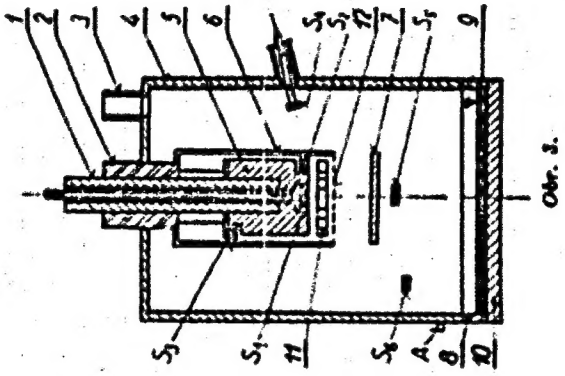
the cathode spot, evaporate and bring about an increase in pressure. There are 8 figures and 10 references: 2 Czech and 8 non-Czech.

ASSOCIATION: ČKD, Prague

SUBMITTED: November 28, 1958.

Fig.3



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Z/017/60/049/011/003/013
E073/E535

AUTHORS: Kloss, Albert and Kubát, Milan, Engineer, Candidate of Technical Sciences, Winner of the Klement Gottwald Prize

TITLE: New Czechoslovak Results in the Field of Semiconductor Power Rectifiers

PERIODICAL: Elektrotechnický obzor, 1960, Vol. 49, No. 11, pp. 554-557

TEXT: Several earlier articles (Refs.1-11) have been published on semiconductor rectifiers, with particular reference to rectifiers produced in Czechoslovakia. Germanium rectifiers with an average current intensity of 70 and 130 A have been developed and are being manufactured in Czechoslovakia, silicon rectifiers for an average current intensity of 150 A have been developed and are being introduced into production and germanium rectifier units for ratings of the order of 25 kW and 300 kW are being manufactured (Ref.7). In this paper the authors give brief information on the most recent Czech developments in the field of silicon rectifiers. The entire issue of this journal is devoted primarily to a number of separate problems relating to high power

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E073/E535

New Czechoslovak Results in the Field of Semiconductor Power Rectifiers

semiconductor engineering, describing the solutions applied by Czech industry. The authors deal basically with equipment designed and manufactured by ČKD, Prague. Detailed economic analyses have shown that greater savings are achieved by using silicon rectifiers in electrolysis, particularly for heavy industrial electrolysis as, for instance, for the production of chlorine, aluminium, copper etc. where d.c. voltages of 300 to 450 V are applied. Such applications have the great advantage that the power consumption has a high constancy without load peaks and without over-loading, so that it is possible to utilise the full load capacity without having excessive reserves. A further important field of application is in mine traction, since they enable building small low voltage (275 V) units which can be automated easily and distributed along the track, enabling considerable savings in capital investments. A further important field of application is 50 c.p.s. railroad traction; for this application the economic advantages are not great but the very

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E073/E535

New Czechoslovak Results in the Field of Semiconductor Power Rectifiers

large number of rectifiers which will be required in electrified railroads imposes the necessity of continuing work in this field. In Czechoslovakia development work on locomotive rectifiers is concentrated at ČKD, Prague. The silicon rectifier units for heavy electrolysis are built in Czechoslovakia for ratings of approximately 6000 A and 300 V or 3000 A and 500 V (all are d.c. values), whereby the parameters depend on the parallel and series connection of the rectifiers. One rectifier compartment, a dimensional sketch of which is shown in Fig.1, contains 96 to 120 UKA 15 silicon rectifiers with the appropriate protection and other auxiliary apparatus. The cooling is effected by two axial fans and the cooling system is so chosen that in the case of failure of one of the fans the rectifier unit can continue to operate with a reduced output. The problem of over-voltage protection has been dealt with in an earlier paper (Ref.11). The silicon rectifier units for mine installations are designed to

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New Czechoslovak Results in the Field of Semiconductor Power Rectifiers

operate in atmospheres with a zero degree of safety; they are built into a dust-tight steel compartments and cooling by means of circulating cold air or by using a water-air heat exchanger can be applied if desired. The output is 500 A, 275 V d.c. The rectifier unit can be overloaded almost continuously up to 1000 A. The rectifier unit consists of 12 to 18 UKA 15 rectifiers, which are connected into a three-phase bridge with parallel connection of the individual rectifiers. The protection is provided by specially designed high speed fuses and also deionizing protective devices. The cooling is effected by axial fans with interlocked signalling, so that the rectifier cannot be operated without cooling. The rectifier has been in experimental operation this year (1960). The silicon locomotive rectifier is designed for single-phase 25 kV 50 c.p.s. locomotives with four axles and an hourly rating of 3000 kW. The rectifier unit is built up of 120 UKA 15 silicon rectifiers arranged in a bridge circuit in each of which there are five rectifiers in series and six in parallel. The design is such as to satisfy the maximum

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Z/017/62/051/003/001/002
D291/D304

AUTHORS: Straka, Jaromir, Engineer, and Kloss, Albert

TITLE: Degassing sealed ignitrons

PERIODICAL: Elektrotechnický obzor, v. 51, no. 3, 1962, 101 -105

TEXT: This article generally describes the physical principles and design features of sealed rectifier ignitrons and lists the degassing and sealing method applied by the ČKD Works in Prague. After initial degassing by electrical heating to 450°C and evacuation at 10^{-5}mm Hg for 10 hrs., the ČKD uses a simple and very accurate method to test the tightness of the tube: the ignitron is temporarily sealed, the grids are in contact with the pool, and a 24 kv a-c is applied to determine the anode-cathode stability. In case the tube is not sufficiently tight and degassed, the increased pressure impairs the electrical stability and a glow discharge can be observed between the electrodes. After this test, the seal is broken, and the tube is further degassed in the so-called 'forming' process. In this process, the igno-

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Degassing sealed ignitrons

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tron is again evacuated and heated by applying a low-voltage current which is gradually increased till 1.5 - times the nominal ignitron current is reached. The forming process is performed on a stand which permits the following test procedure: the ignitron is loaded with its nominal current and the exhaust pumps are disconnected. After a period of two hours, the current is also cut off, and the tube cooled for a period of four hours with the exhaust pumps still disconnected. The pressure is continuously measured through-out the entire test. During the period where the tube is loaded with its nominal current, the pressure rises only slightly; as soon as the arc is extinguished, the gettering effect of the current ceases, and the pressure rises considerably till reaching a certain maximum. This maximum is a criterion for the degassing degree and must not exceed a certain value. When this test is successfully passed, the ignitron is ready for final sealing. The sealing requires great care and is performed under continuous evacuation. The glass exhaust tube is degassed by repeated electrical red heating, and fused and cut with pneumatically operated jaws. After

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Degassing sealed ignitrons

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D291/D304

completion, the ignitron is again tested for its electrical stability by applying a tension of 24 kv between the anode and the grid which is connected to the cathode. There are 9 figures.

ASSOCIATION: ČKD Praha (ČKD Prague)

SUBMITTED: April 26, 1961

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S/194/62/000/001/030/066
D201/D305

AUTHORS: Klose, A. and Brožovsky, M.

TITLE: Preparing vacuum seals by the HF heating

PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika, no. 1, 1962, abstract 1-3-57 ye (Techn. zprávy CKD, 1960, 6, no. 10, 299-336)

TEXT: The following requirements are laid down as to the properties of vacuum of electrodes seals of welded ignitrons: High electric and mechanical strength (especially against vibration), high temperature stability within the -50 to +450°C range (the ignition welding temperature). Advantages and disadvantages of various types of vacuum seals are also considered: Vacuum welded ceramic, vitrified, glass-metal. It is shown that for ignitrons, metal-ceramic seals are the most suitable ones. The following main features of metal-to-glass joints are analyzed: The problem of oxidation of Kovar and the methods of determining its 'oxidation curve': the results of experiments related to the choice of optimum technology

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Preparing vacuum seals ... S/194/62/000/001/030/066
D201/D305

of vitrification are given which have shown that using a suspension with glass particles $\geq 10^{-4}$ mm in diameter, the amount and dimensions of air bubbles in the enamel decrease. A short description of the sealing-in technique by means of heating of the vacuum anode, grid and ignitron inlets is given. Photographs of vacuum seals of various types are given, together with the microstructure of Kovar at various stages of the technological process, 'oxidation curve' of Kovar in comparison with the analogous curve for steel, schematics of the cross-section of the enamel layer at various stages of vitrification and a photograph of the external view of the equipment. 8 references. [Abstracter's note: Complete translation.]

Card 2/2

KLOSS, A.

Increasing the current-carrying capacity of mercury valves.
El tech obzor 51 no.1:49-50 Ja '62.

KLOSS

Direct current power transmission in the United States. El tech obzor 51 no.1:51-52 Ja '62.

KLOSS, A.

Use of ignitrons for as non-contact switches in thermonuclear research. El tech obzor 51 no.2:89-90. F '62.

KLOSS, Albert

Swedish experimental locomotive with silicon rectifiers. Zelez dop tech 9 no.11:344-345 '61.

KLOSS, Albert

Analysis of the power circuit of silicon rectifiers for single-phase locomotives. Zel dop tech 10 no. 1:10-11. '62

S/194/62/000/007/080/160
D295/D308

AUTHOR: Kloss, Albert

TITLE: Hermetical insulating casing for high-power monocrystal rectifiers

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 7, 1962, abstract 7-4-99 u (Czech. pat. cl. 21 g, 11/02, no. 97811, Dec. 15, 1960)

TEXT: The proposed casing consists of two stamped steel blanks: a cap and a truncated cone. The cap is put on the narrow part of the cone and is glued to it by a glassy enamel. A contact wire passes to the junction through an opening in the top end of the cap; the wire is welded or soldered to the cap. The lower base of the cone is welded or soldered to the second current contact which is a metal contact plate closing the base of the cone. The casing ensures hermetical insulating protection from external atmospheric influences and makes it possible to fill the inner space with inert gas. The casing is shock-proof and meets insulation-strength and temperature-stability specifications. The use of such casings, stamped from

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STRAKA, Jaromir, ing.; KLOSS, Albert

Degussing of sealed ignitrons. El tech obzor 51/96.3:101-105 Mr '62.

1. Ceskomoravska-Kolben-Danek Praha.

KLOSS, A.

Experience with semiconductors on French railways. El tech obzor 51 no.3:124-125 Mr '62.

KLOSS, Albert

Transmission of electric power by high-voltage direct current. Energetika Cz 11 no.9:455-458 S '61.

KLOSS, Albert

British single-phase locomotives. Zel dop tech 10 no.2:59-61 '62.

KLOSS, Albert

Electric power transmission by a direct current between south and north islands of New Zealand. El tech obzor 51 no.11:604-605 N '62.

KLOSS, Albert

Soviet single-phase locomotive with 6 MW output. El tech obscr 52 no.5:258-259 My '63.

KLOSS, A.

New type of silicon rectifying valve. Kl tech obzor 52 no.7: 388 Jl '63.

KLOSS, Albert

Development of silicon rectifiers of the French single-phase locomotives. El tech obzor 52 no.7:389 Jl '63.

KLOSS, A.

"Rectification equipment of heavy-current engineering; introduction to theory and practice" by H. Anschuts. Reviewed by A. Kloss. El tech obzor 52 no.7:390-391 Jl '63.

KLOSS, A.

Problems of the development of railroad electrification by direct current. El tech obzor 52 no.8:442 Ag '63.

KLOSS, Albert

Electrification of the Rumanian railroads. El tech obzor 52 no. 12:686 D '63.

ACCESSION NR: AP4016821 2/0017/64/053/002/0078/0082

AUTHOR: Dolezal, Josef (Engineer); Kloss, Albert; Lacina, Otakar (Engineer)

TITLE: Method of mathematical control of the temperature increase of silicon rectifiers subjected to short-circuit currents by means of an automatic digital computer

SOURCE: Elektrotechnicky obzor, v. 53, no. 2, 1964, 78-82

TOPIC TAGS: rectifier, computer application

ABSTRACT: A method is presented which makes it possible to calculate the temperature increase in silicon rectifiers subjected to shortcircuit currents in a time interval of 10-150 ms. The principle of the method is an electrothermal equivalent circuit of the rectifier with which the thermal conditions of the p-n junction are modelled within a certain time interval. The parameters of the circuit are selected so that the behavior of the circuit corresponds to the experimentally derived data. The ocalculation was carried out by an automatic digital computer. If more elements were used in the circuit, it would be possible to obtain an electrothermal analogy of the rectifiers for

Card 1/1

KLOSS, Albert

Single-phase locomotives with ignitrons connected in a series. El tech obsor 53 no. 3: 166 Mr '64.

New arrangement of the voltage divider in high-voltage mercury valves. Ibid.: 172-173.

KLOSS, Albert; JIRMAR, Vaclav, inz.; KARLOVSKY, Petr

Silicon rectifier of the first Czechoslovak alternating current locomotive. El tech obzor 53 no. 5:268-272 My '64.

1. Ceskomoravska-Kolben-Danek Praha, National Enterprise.

DOLEŽAL, Josef, ing.; KLOSS, Albert; LACINA, Otakar, ing.

Method of numerical control of the heating of silicon valves stressed by short-circuit currents by using automatic digital computers. El tech obzor 53 no. 2:78-82 F '64.

1. Ceskomoravska-Kolben-Danek National Enterprise, Prague.

KLOSS, Albert

New silicon locomotives for Hungarian railroads. El tech obzor 53 no.9:498 S '64

KLOSS, Albert

Soviet controlled silicon valves. El tech obzor 53 no.10:Suppl.: Zpravy 53 no.10:237 '64.

KLOSS, Albert

Railroad converter stations with silicon rectifiers. Zel dop tech 12 no.10:260-261 '64.

KLOSS, Albert

A new Soviet standard for semiconductor valves. El tech obzor 53 no.10:579 O '64.

L 34546-66

ACC NR: AP6024709 SOURCE CODE: CZ/0042/65/000/010/0593/0603

AUTHOR: Kloss, Albert (Development worker)

ORG: Electrical Engineering Plant, CKD, Prague (Zavod Elektrotechnika, CKD)

TITLE: Contribution to the circuit breaking of DC short circuits

SOURCE: Elektrotechnicky casopis, no. 10, 1965, 593-603

TOPIC TAGS: direct current, electronic circuit, circuit breaker, electronic component

ABSTRACT: The paper presents an analysis of the influence of a limiting reactor on the circuit breaking of a DC short circuit by a circuit breaker in the DC circuit. To limit the negative influence of the reactor's inductivity, which causes a prolongation of the circuit breaking time and a rise of the voltage stress in the circuit breaker, a zero valve is proposed which is connected in parallel with the reactor. A theoretical analysis of that circuit is made which is supplemented by model and power output tests which confirm the correctness of the theoretical conclusions. This article was presented by V. Taimr. The model tests were carried out by Engineer J. Kovarik and S. Svatos. The output test were confirmed by Engineer Z. Zvolanek and Engineer O. Horacek. Orig. art. has: 10 figures and 17 formulas. [Based on author's Eng. abst.] [JPRS: 34,691]

SUB CODE: 09 / SUBM DATE: 16Apr65 / OTH REF: 002

Card 1/1

KLOSS, B.M. (Moskva); NECHIPORUK, A.I. (Leningrad)

Classification of multivalued logic functions. Probl. kib. no.9:27-36 '63. (MIRA 17:10)

(5)

F1b

S/052/62/007/003/001/004
0111/0333

AUTHOR: Kloss, B. M.

TITLE: On stable distributions on a class of locally compact groups

PERIODICAL: Teoriya veroyatnostey i yeye primeneniye, vol. 7, no. 3, 1962, 249-270

TEXT: Considered are distributions on locally compact groups G which can be represented in compact groups G'. The distributuions on G are normed Radon-measures, Ref. 2 (R. E. Edwards, A theory of Radon measures on locally compact spaces, Acta math., 89 (1953), 133-164). In § 1 idempotent distributions μ are considered. It is known (Ref.2) that for every Radon-measure μ there exists a maximal open set with the measure zero. Let $\omega(\mu)$ be the complement of this set. It is shown, among others, Theorem 1: If $\mu^2 = \mu$, then $\omega(\mu)$ is a bicompact sub-group of G and μ is the invariant Haar measure of this sub-group. μ induces on G' the idempotent distribution law μ', where $\omega(\mu) = \varphi[\omega(\mu)]$ and φ is the continuous one-to-one mapping of G in G'. Further, the author refers to his convergence principle for distributions, Ref. 7 (B.M. Kloss, O veroyatnostnykh raspredeleniyakh na bikompaktnykh

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16.2200

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0111/0333

On stable distributions on a class ...

topologicheskikh gruppakh [On probability distributions on bicompact topological groups] Teoriya veroyat. i yeye primen. vol. 6, no. 3, (1959), 255-290) and shows: Let G be separable and representable in a compact group. If the convergence principle for distributions holds for G, then G is also compact. § 2 is devoted to infinitely divisible distributions on Abelian groups. The concept of the H-uniform distribution law (Ref. 7) is extended to the case in point. Theorem 3: Every infinitely divisible distribution law μ on a locally compact Abelian group G is rigorously H-uniform (H is the compact sub-group of G); if π is an invariant measure on H, then the characteristic functions of μ and π have the same zeros. A canonical representation of the infinitely divisible distribution laws is obtained for commutative Lie groups. § 3 deals with limit value theorems. It is shown, among others: For μ to be the boundary value of

$$\mu_1 \mu_2, \ldots, \mu_n, \ldots, \qquad (7)$$

where

$$\mu_n = \mu_{n1} \mu_{n2} \cdots \mu_{nk_n}, \quad n=1,2,\ldots \qquad (8)$$

Card 2/4

$$\lim_{n \to \infty} \inf_{1 \le k \le k_n} \mu_{nk}(V) = 1 \qquad (9)$$

are satisfied, it is necessary and sufficient that μ is infinitely divisible. For the cylinder $G = K^s \times R^r$, where K^s is an s-dimensional torus and R^r is an r-dimensional Euclidian space, the concept of stable distributions is introduced as follows: μ is stable on G, if for arbitrary numbers $\alpha_1, \alpha_2 > 0$, arbitrary elements $a_1, a_2 \in G$ and arbitrary random quantities ξ_1, ξ_2 with the distribution μ there exist such $\alpha > 0$, $a \in G$, ξ (with the same distribution μ), that $(\alpha_1 \xi_1 + a_1) + (\alpha_2 \xi_2 + a_2) = \alpha \xi + a$. Here αx for $x \in G$ is defined by $\alpha x = (x_1, \ldots, x_s, \alpha y_1, \ldots, \alpha y_2)$. Theorem 8: For μ to be a limit distribution for the sum

$$\zeta_n = \frac{1}{\alpha_n} \sum_{k=1}^{n} \xi_i - a_n \qquad (13)$$

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C111/C333

On stable distributions on a class ...

of independent equally distributed random quantities, it is necessary and sufficient that μ is stable. Further, every stable law on the cylinder $G = K^s \times R^r$ is infinitely divisible. Finally, the attraction domains of the stable laws are considered in § 4.

The most important English-language reference is: G. A. Hunt, Semi-groups of measures on Lie groups, Trans. Amer. Math. Soc., 81, 2(1956), 264-293.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University im. M. V. Lomonosov)

SUBMITTED: January 4, 1960

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KLOSS, B. M. (Moscow)

Limit distributions on bicompact Abelian groups. Teor. veroiat. i ee prim. 6 no.4:392-421 '61. (MIRA 14:11)
(Abelian groups)
(Limit theorems(Probability theory))

KLOSS, B.M.

Stability of distributions in a certain class of locally compact groups. Teor. veroiat. i ee prim. 7 no.3:249-270 '62. (MIRA 15:7)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.
(Abelian groups) (Probabilities)

KLOSS, B.M. (Moscow)

Topology in a group and convergence of distributions. Teor. veroiat. i ee prim. 9 no.1:122-125 '64. (MIRA 17:4)

KLOSS, B.M.

Definition of the complexity of algorithms. Dokl. AN SSSR 157 no.1:38-40 Jl '64 (MIRA 17:8)

1. Predstavleno akademikom A.N. Kolmogorovym.

KZ055 1-AW3

Klepa, B. M. Limiting distributions of sums of independent random variables taking values from a bicompact group. Dokl. Akad. Nauk SSSR (N.S.) 100 (1955), 453-455. (Russian)

Employing machinery devised by the reviewer (Proc. Amer. Math. Soc. 5 (1954), 923-929; MR 16, 796) the author discusses convergence of sequences μ^n, $n=1, 2, \ldots$, where μ is a normalized regular positive measure on a compact group G. The problems and results (the latter being stated without proof) are also expressed probabilistically, in terms of partial sums of identically distributed G-valued random variables. In this terminology the central result is the obvious one, that the only stable laws are uniform distributions over compact subgroups of G. [Cf. also Prékopa, Rényi and Urbanik, Acta Math. Acad. Sci. Hungar. 7 (1956), 11-16, and pertinent comments by the reviewer thereof, MR 18, 25.]

J. G. Wendel (Ann Arbor, Mich.).

KLOSS, B.M., Cand Phys-Math Sci — (diss) "Boundary theorems of the theory of probabilities on bicompact groups." Mos, 1959. 6 pp (Mos State U im M.V. Lomonosov. Mech-Mathem Faculty). 150 copies Bibliography: pp 5-6 (17 titles) (KL,40-59, 101)

16(1)

AUTHOR: Kloss, B.M. SOV/52-4-3-2/10

TITLE: Probability Distributions on Bicompact Topological Groups

PERIODICAL: Teoriya veroyatnostey i yeye primeneniye, 1959, Vol 4, Nr 3, pp 255-290 (USSR)

ABSTRACT: The present paper contains detailed proofs for the results announced in [Ref 7].
The author mentions N.N.Vorob'yev, and Ya.I.Rivkind. He thanks Professor V.Ya. Kozlov for the leading of the work.
There are 26 references, 5 of which are Soviet, 7 American, 4 Japanese, 2 Polish, 1 French, 2 Hungarian, 1 English, and 4 Czecho-Slovakian.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova (Moscow State University imeni M.V.Lomonosov)

SUBMITTED: March 12, 1959

Card 1/1

KLOSS, B.M.

PHASE I BOOK EXPLOITATION SOV/5481

Soveshchaniye po teorii veroyatnostey i matematicheskoy statistike, Tarusa, 1958

Trudy Vsesoyuznogo soveshchaniya po teorii veroyatnostey i matematicheskoy statistike, Tarusa, 15-20 sentyabrya 1958 g. (All-Union Conference on the Theory of Probability and Mathematical Statistics. Held in Tarusa 15-20 September, 1958. Transactions) Tarusa, Izd-vo AN SSSR, 1960. 282 p. Errata slip inserted. 2,500 copies printed.

Sponsoring Agency: Akademiya nauk Ukrainskoy SSR.

Editorial Board: G.A. Ambartsumyan, A.V. Gnedenko, Yu.B. Rymkin, Yu.V. Linnik and B. Ye. Tarasov; Ed. of Publishing House: A.S. Sigunov; Tech. Ed.: S.A. Begunova.

PURPOSE: The book is intended for mathematicians.

COVERAGE: The book contains 41 articles submitted to the Conference and dealing with the theory of probability and mathematical statistics. Some of the articles are the papers read at the Conference and edited for publication, while others outline the theses of papers which appeared or are scheduled to appear, wholly or in part, in other publications; in some cases, such publications are quoted. A list of the papers whose contents were published elsewhere is included and the places of publication are indicated. Individual articles examine theories of mass service, spectral instruments, matrices, games, and certain functions, and discuss the theorems of Shannon, Markov's chains, and certain processes, generalizations, and functions. Such items as the method of least squares, the stochastic, Markov's and differentiprocesses, measures and their applications, a review of Bernoulli experiments, Markov-type random fields, visible distribution of stars, Brownian motion, capacity of radio channels, and defective products are considered. No personalities are mentioned. References accompany some of the articles.

KLOSS, B.I.

PHASE I BOOK EXPLOITATION SOV/5481

Soveshchaniye po teorii veroyatnostey i matematicheskoy statistike, Yerevan, 1958

Trudy Vsesoyuznogo soveshchaniya po teorii veroyatnostey i matematicheskoy statistike, Yerevan, 15-27 sentyabrya 1958 g. (All-Union Conference on the Theory of Probability and Mathematical Statistics. Held in Yerevan 15-27 September, 1958. Transactions) Yerevan, Izd-vo AN ARSS, 1960. 392 p. Errata slip inserted. 2,500 copies printed.

Sponsoring Agency: Akademiya nauk Armyanskoy SSR.

Editorial Staff: G.A. Ambartsumyan, S.V. Gershgorin, Ye.B. Dynkin, Yu.V. Linnik and S. Kh. Sarkisyan; Ed. of Publishing House: A.A. Sikorskiy; Tech. Ed.: N.A. Bagdasyan.

PURPOSE: The book is intended for mathematicians.

COVERAGE: The book contains 41 articles submitted to the Conference and dealing with the theory of probability and mathematical statistics. Some of the articles are the papers read at the Conference and edited for publication, while others outline the theses of papers which appeared or are scheduled to appear, wholly or in part, in other publications; in some cases, such publications are quoted. A list of the papers whose contents were published elsewhere is included and the places of publication are indicated. Individual articles consider theorems of mass service, spectral instruments, numbers, groups, and certain functions, and discuss the theorems of Chebyshev, Markov's chains, and certain processes, quantities, and functions. Such items as the method of least squares, the statistics, Markov's and differentiations, measures and their applications, a scheme of Bernoulli experiments, Markov-type random fields, stable distribution of sums, Brownian motion, capacity of radio channels, and informative products are also addressed. No personalities are mentioned. References accompany some of the articles.

Card 4/8

KLOSS, B.M.; MALYSHEV, V.A.

Determining the complexity of some classes of functions.
Vest. Mosk. un. Ser. 1: Mat., mekh. 20 no.4:44-51 Jl-Ag '65.
(MIRA 18:9)

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[The "Mir" motorboat] Motornaia lodka "Mir." Moskva, Izd-vo DOSAAF, 1957. 30 p. (MIRA 11:4)
(Motorboats)

ZAKHAROV, S.; KLOSS, N.

Metal models of ships. Voen.znan. 29 no.8:23 Ag '53. (MLRA 6:8)
(Ship models)

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(Canoes and canoeing) (MLRA 8:10)

KLOSS, E.

"Volna" cutter. Voen. znan. 33 no.4:insert 4 p. Ap '57.
(MLRA 10:6)

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Conversion of automobile engines. Za rul. 17 no.7:20-21 Jl '59. (MIRA 13:1)
(Automobiles--Engines)

KLOSS, Emiliy Emiliyevich; BIRYUZOVA, Ye.I., red.; KARYAKINA, M.S., tekhn.red.

[The "Turist" motorboat] Motornyi kater "Turist." Moskva, Izd-vo DOSAAF, 1960. 117 p. (MIRA 13:11)
(Motorboats)

KLOSS, E., konstruktor

MK-29 cutter. Voen.znan. 38 no.5:33-34 My '62. (MIRA 15:5)
(Motorboats)

KLOSS, Emiliy Emil'yevich; FILIMONOV, I.M., red.; KOROLEV, A.V., tekhn. red.

[Amateur boatbuilding] Suda liubitel'skoi postroiki. Izd.2., perer. i dop. Moskva, Izd-vo DOSAAF, 1963. 46 p. (MIRA 17:1)

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Measurement of extremely short decay time of organic luminophores excited by electron beam. Cs cas fys 12 no.5/6:628-633 '62.

1. Fysikalne-technicky ustav Nemecke akademie ved, Berlin.

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Difficulties of differentiation between the child schizophrenia and the schizophrenia-like syndromes on the basis of organic changes in the brain. Neurol. neurochir. psychiat. Pol. 15 no.2: 207-212 Mr-Ap '65.

1. Z Kliniki Psychiatrycznej AM w Warszawie (Kierownik: prof. dr. A. Jus) i z Sanatorium Neuropsychiatrii Dziecięcej w Garwolinie (Kierownik: dr. S. Wawrzynczyk).

KLOSS, R.

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June 1954
Other Prime Movers

4612. OPERATIONAL CONDITIONS IN AIR-COOLED DIESEL ENGINES.
Kloss, R. (Pap. to Ver. dtsch. Inc., 12 Nov. 1952; abridged in Gas Öl Fett. Anl. Tech. Rev., 1953, Vol. 40, 308-310). (L).

10/11/54

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Condensation of unsaturated polyesters. Pt. 1. Polimery tvorz wielk 8 no.1:9-13 Ja '63.

1. Instytut Tworzyw Sztucznych, Warszawa.

POLAND

DUDZIK, Zygmunt, KLOSOWSKI, Seweryn, LUDWICKI, Henryk, and SOBICZEWSKA, Maria, Department of Galenic Drugs (Zaklad Lekow Galenowych), Drug Institute (Instytut Lekow) in Warsaw (Director: Dr. H. LUDWICKI)

"Determination of Camphor in Some Pharmaceutical Preparations."

Warsaw, Farmacja Polska, Vol 19, No 6, 25 Mar 63, pp 110-111.

Abstract: Authors describe a colorimetric method (using Ehrlich's solution and a Pulfrich photocolorimeter (filter S 53)) to determine the amount of camphor in galenicals. They find the method reproducible, suitable for analytical laboratory, sufficiently accurate, and less cumbersome than the method recommended in Farmakopeia Polska III. There are 16 references, of which one is Polish, two are Russian, four German, and the others Western, mostly English.

1/1

DUDZIK, Zygmunt; KLOSOWSKI, Seweryn; LUDWICKI, Henryk; and SOBICZEWSKA, Maria

Determination of camphor in some pharmaceutical preparations. Farmacja Pol 19 no.6:110-111 25 Mr '63.

1. Zaklad Lekow Galenowych, Instytut Lekow, Warszawa. Kierownik: dr H. Ludwicki.

*

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"A Reinforced Concrete Corridor For Water Pipes Under Railway Tracks" p. 287.
(Gaz, Woda I Technika Sanitarna, Vol. 27, no. 10, Oct. 1953, Warszawa.)

SO: Monthly List of East European Accessions, Vol. 3, No. 2, Library of Congress, February, 1954 ~~1953~~, Uncl.

Klossowski, J.

4,020. METHODS USED IN BUCHAREST FOR PROTECTING PIPES AGAINST STRAY CURRENTS. Klossowski, Ja. (Gaz, Woda Tech. Sanit. (Gaz, Wodoc, Sanit. Inzyn. Warsaw), 1955, vol. 29, July, 226-230; Aug., 268-270; abstr. in Ass. tech. Industr. Gaz France Circ. bibliogr., 15 Oct. 1955, (9), 23). To prevent electrolytic corrosion of underground pipes in Bucharest a systematic study is made of the electrical condition of the soil and of the potential of the pipes with respect to the soil. The apparatus used for the study is described. Results obtained from 1949-1951 with regard to pipe protection are given.

KLOSSOWSKI, J.

Means used for diminishing the power of wandering currents in Bucharest. p. 45, (GAZ, WODA I TECHNIKA SANITARNA, Vol. 29, No. 2, Feb. 1955, Warszawa, Poland)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, No. 5 May 1955, Uncl.

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Methods used in the protection of pipes against wandering current in Bucharest. p. 228.

GAZ, WODA I TECHNIKA SANITARNA, Warszawa, Vol. 29, no. 7, July 1955.

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Cathodic protection of pipes by means of insulated joints.

(to be cond.) p. 268. Vol. 29, no. 8, Aug. 1955. Gaz, Woda I Technika Sanitarna.

SOURCE: East European Accessions (EEAL), LC, Vol. 5, no. 3, March 1956.

KLOSSOWSKI, J.

KLOSSOWSKI, J. Cathodic protection of underground pipelines against wandering currents; continuation of observations from Bucharest. p. 10. GAZA, WODA I TECHNIKA SANIT ARNA. Warszawa, Poland. Vol. 30, No. 1, Jan. 1956

SOURCE: East European Accessions List (EEAL) LC Vol. 5, No. 6, June 1956

KLOSSOWSKI, J.

1666. CATHODIC PROTECTION OF UNDERGROUND PIPES AGAINST STRAY CURRENTS.

[illegible] 15 Apr. 1956, 6 1, 111.

KLOSSOWSKI, J.

Deferrization of water.

p. 395 (Gaz, Woda I Technika Sanitarn. Vol. 31, No. 10, Oct. 1957. Warsaw, Poland)

Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 2,
February 1958

KLOSSOWSKI, J.

Introductory remarks on problems of communal economy in the draft of a plan of water-power management in Poland. p. 57. (Gospodarka Wodna, Vol. 17, No. 2, Feb 1957, Warsaw, Poland)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, No. 8, Aug 1957. Uncl.

KLOSSOWSKI, J.

Some water-supply problems of Berlin's western sectors. p. 72.

GAZ, WODA I TECHNIKA SANITARNA. (Stowarzyszenie Naukowo-Techniczne Inzynierow i Technikow Sanitarnych, Ogrzewnictwa i Gazownictwa) Warszawa, Poland. Vol. 33, no. 2, Feb. 1959.

Monthly list of East European Accessions Index (EEAI), LC, Vol. 8, no. 6, June 1959
uncla.

KLOSSOWSKI, Jerzy, mgr inz.

Phytoplankton in the Vistula River upstream from Warsaw. Gosp wodna 23 no.4:146-149 Ap '63.

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Plankton combating in the Warsaw sewerage. Gaz woda techn sanit 37 no.8:264-265 Ag '63.

KLOSSOWSKI, Mieczyslaw, inz. (Lodz)

First Polish Experiment Station for the production of pre-stressed concrete with Weiler's slick aggregate of the Lodz Building Management. Przegl budowl i bud miesak 33 no.1: 56 Ja '61

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Chemical abst.
Vol. 48 No.9
May 10, 1954
Soils and Fertilizers

3

The action of blast-furnace slag and limestone as calcium fertilizers, as affected by the degree of grinding. W. Klossowski and [illegible] Rocznik Nauk Rolniczych 69, [illegible] (1953).—Blast-furnace slag proved to be an efficient Ca fertilizer in many field and pot tests. The efficiency of slag as a fertilizer was conditioned by the degree of grinding. The same was true of limestone. The action of these fertilizers was compared with pptd. $CaCO_3$. Blast-furnace slag was as effective as pptd. $CaCO_3$ when reduced to particles smaller than 1 mm. Limestone particles smaller than 0.5 mm. were equal in action to pptd. $CaCO_3 \cdot H_2O$.

KLOSSOWSKI, W.

POLAND/Electronics - Application of Electron and Vacuum Technique H-10

Abs Jour : Ref Zhur - Fizika, No 5, 1959, No 11176

Author : Klossowski Wieslaw
Inst : Faculty of Electric Measurements, Warsaw Polytechnic
Title : Use of Semiconductors in Electric Measuring and Control Apparatus

Orig Pub : Pomiary, automat., kontrola, 1958, 4, No 5-6, 253-260

Abstract : The author describes the fields of application of semiconductors, and particularly, their use for the measurement of electric quantities and for automation. A comparison is made of the characteristics of germanium diodes with other rectifying devices (copper, selenium, silicon). The basic properties of a junction silicon diode are given, along with the application of the germanium diode to measuring instruments and elements of automation and telemechanics. Characteristics of amplifying elements are given, and also theuse of transistors in control apparatus and in electric measuring instru-

Card : 1/2

KLOSSOWSKI, W.

TECHNOLOGY

PERIODICAL: POMIARY, AUTOMATYKA, KONTROLA, Vol. 4, no. 7, July 1958.

KLOSSOWSKI, W. Exhibition of Hungarian electric and electronic measuring instruments and medical apparatus in Warsaw. p. 355.

Monthly List of East European Accessions (EEAI) LC Vol. 8, no. 4

April 1959, Unclass.

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"Distant control and distant measuring with radio devices" by Jean Marcus. Reviewed by Wieslaw Klossowski. Pomiary 9 no.2:91-92 F '63.

BRUCKNER, L., MUDr.; FAJMANOVA, L.; KLOSTERMANOVA, D.; BERGER, K.; JAROSOVA, L.

Statistics on the assistance in control of oncological diseases. Cesk. zdravot 7 no.5:265-269 June 59.

1. Onkologicke oddeleni KUNZ Ostrava V. v Paskove Krajska zdravotnicka statisticka sluzba v Ostrave.
(NEOPLASMS, prev. & control in Czech. (Cz))

CSIRE, Lajos; KLOSZ, Tamas

Examination of milk production of certain teats of sows as well as the amount of milk sucked by differently developed piglets. Allattenyesztes 13 no.4:335-344 D '64.

1. Division of Pig Breeding of the Research Institute of Animal Breeding, Budapest. Submitted February 10, 1964.

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Report presented at the 3rd National Conference on Semiconductor Compounds, Kishinev, 16-21 Sept 1963

2. Electrical properties of highly degenerate crystals of n- and p-type gallium arsenide. O. V. Yemel'yanenko, F. P. Kesamanly, D. N. Nasledov, V. G. Sidorov, G. N. Talalakin.

Concerning the interaction of electrons with lattice vibrations in gallium arsenide. O. V. Yemel'yanenko, T. S. Lagunova, D. N. Nasledov, V. Ye. Shcherbatov.

Electrical properties of gallium arsenide with different impurities. D. N. Nasledov, G. N. Talalakin.

Investigation of the properties of impurity zones in crystals of p-type gallium arsenide. O. V. Yemel'yanenko, T. S. Lagunova, D. N. Nasledov, V. Ye. Shcherbatov.

Galvanomagnetic properties of indium arsenide in a wide temperature range. Yu. M. Burdukov, I. V. Zatova, T. S. Lagunova, D. N. Nasledov.

Nernst effect in n-type indium phosphide.
F. P. [illegible], E. E. Klotin.
([illegible])

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Method of artificial exclusion of auditory function of the labyrinth in experimental animals. Vest. otorinolar., Moskva 14 no.1:30-31 Jan-Feb 52. (CIML 21:4)

1. Candidate Medical Sciences. 2. Of the Clinic for Diseases of the Ear, Throat, and Nose (Director--Honored Worker in Science Prof. K.K. Khilov), Leningrad Sanitary-Hygienic Medical Institute (Director--Prof. D.A. Zhdanov, Corresponding Member of the Academy of Medical Sciences USSR).

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Socialist competition in action. Sakh. prom., 26, no. 1, 1952.

9. Monthly List of Russian Accessions, Library of Congress, April 1952, Uncl.

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Fixing core-type cutting tools. Stan.i instr. 29 no.12:37-38 D '58. (MIRA 11:12)

(Metal-cutting tools)

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Accounts of progressive practices in house committees. Zhil.-kom.-khoz. 12 no.7:10-11 Jl '62. (MIRA 16:5)

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(Apartment houses)

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Irrigating wide and long strips. Gidr. i mel. 15 no.3:20-26 Mr '63. (MIRA 16:4)

(Irrigation)

1. KLOTS, Ye

2. USSR (600)

4. Poultry Industry

7. Province conference on chicken raising. Pittsevodstvo no. 11, 1952.

9. Monthly List of Russian Accessions, Library of Congress, March 1953. Unclassified.

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Sixth Plenum of the All-Union Council of Scientific Technological Societies. Zemledelie 24 no.7:91-93 Jl '62. (MIRA 15:12)
(Agriculture—Congresses)

KLOTS YE A.

POLOVENKO, I.S., kand. ekon. nauk,; SHIMKO, N.I., agronom-ekonomist,; ARTYKOV, A., BORISOV, V.A., GONCHAROV, A.I., KLOTS, Ye.A., SPERANSKIY, V.Z., SHAPIRO, L.L.; KALASHNIKOVA, V.S., red.; BALLOD, A.I., tekhn. red.

[Experience in introducing a new procedure in planning] Opyt vnedreniia novogo poriadka planirovaniia. Moskva, Gos. izd-vo sel'khoz. lit-ry, 1958. 308 p. (MIRA 11:11)
(Agriculture)